



THE METEORIC RISE OF THE CHINESE PETROCHEMICAL INDUSTRY

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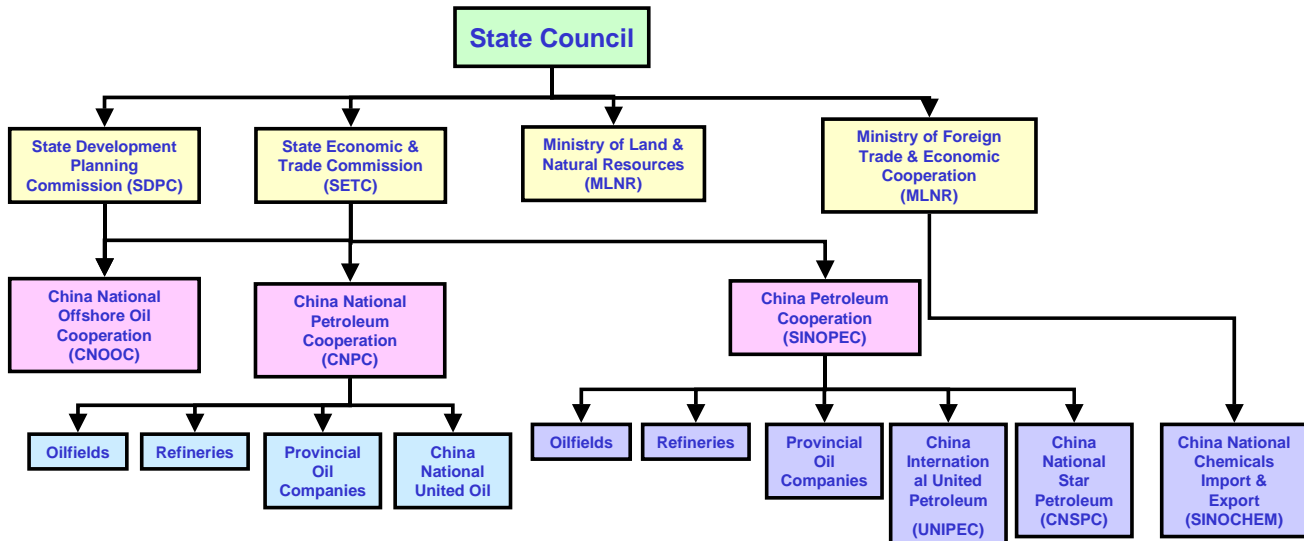
China's Chemical Industry Overview

China is undergoing a period of momentous change now with its newly acquired WTO membership proudly tucked under its belt that is providing the world with an unprecedented entry to China's market. It will be an uphill climb before China can attain a free market economy status and the task is made more challenging to prevent its half-restructured economy from collapsing. For the past decade, China's GDP has been nothing less than phenomenal, sustaining an average of 7%, while the global economy was stagnating. Although the market potential is undeniably massive in size, majority of the industrial sectors were plagued by problems brought about by excessive government interference, typical of Maoist policies. The price tag that came with the WTO membership is for China to open up jealously guarded industries such as telecommunication, petrochemical, automotive and agriculture. The petrochemical industry has been classified as a "pillar" industry, which will remain closely monitored by the government despite relaxation of regulations pertaining to foreign ownership and investments.

The astronomical size of the Chinese chemical market has naturally led it to become an integral sector in the Chinese economy. Traditionally the government orchestrated the entire structural development of the petrochemical sector. Unfortunately, there was little geographic and strategic planning involved in the initial planning stages, which resulted in a very fragmented industry comprising of money-losing state-owned enterprises (SOEs). The expansion of the petrochemical industry was severely hampered by the lack of advanced technology despite concerted efforts by the Chinese government to accelerate the acquisition of Western technology. Moreover, most of them lacked the technical know-how to run the production plant at an optimal rate. The government gradually realized that providing continual support for the SOEs failed to encourage a competitive landscape, and hence, growth. By the mid-1990s, foreign participation in China's petrochemical industry provided impetus for restructuring the entire chemical industry structure, resulting in a lesser degree of interference by the government. Despite the industry reforms that are underway, the government still exercises some control over the chemical sector. **Exhibit 1** details the blueprint of how the Chinese government has methodically designated very specific functions to each organization in order to monitor the developments of the petrochemical industry. The administrative structure is segregated into two levels: (1) Central Government Level and (2) the Ministerial Level. SINOPEC is a dominant force in the latter. The State Council established China Petroleum Corporation (SINOPEC) in 1983 to consolidate the processing and distribution of petroleum products. When the Central Government recognized the enormous stream of revenues from the petrochemical industry, they realized that it was imperative to set up corporations that serve the following functions:

- (1) Provide a portal of entry for multinational chemical companies
- (2) Vertically integrate related chemical and plastic industries in China
- (3) Centralize the directives particularly on the downstream and distribution aspects of the operation
- (4) Achieve economies of scale
- (5) Accelerate the pace of technological advancement

Exhibit 1: China's Petrochemical Structure



Source: Chemical Market Resources

Therefore, the two dominant petrochemical companies, PetroChina and Sinopec, were instructed by the government to overhaul the whole petrochemical structure within a very tight timeline. Sinopec has been rigorously reforming its organization to prepare for the post-WTO era. The gradual shift from a centrally planned economy to a market economy has triggered a succession of restructuring programs in every facet of the petrochemical industry in China. In 1998, the WTO entry ticket was in close proximity but there was hardly anytime for a celebratory fanfare because the industry only had a few years to eradicate the “thorns” that would ultimately cripple the growth of the industry. These “thorns” that have hampered the growth of the Chinese petrochemical industry refer mainly to the following:

1. Subscale production units
2. Problems in the capital structure include high assets-liabilities ratio, great proportion of non-operating assets and low rate of return on assets.
3. There is a gap of 10-12 years between China and foreign companies in oil refining and petrochemical production. No complete technologies with independent intellectual property rights had been formed in petrochemical production.
4. Domestic products have few varieties and there are a lot of commodities but few special materials to address the needs of the local chemical market.
5. Inefficient infrastructure

Prior to China's accession into the WTO, there were numerous heated debates on the pros and cons of opening up China to the world. Although most in the petrochemical industry grudgingly acknowledges the pressing need for foreign participation to propel their technological progression, but most local players will not be able remain unscathed from the intense competition that is imminent.

IMPACT ON THE CHEMICAL INDUSTRY

Heated Competition

The protective shield that the government had built to safeguard local chemical producers from foreign competition will be gradually removed. China has agreed to lower tariffs on various imported chemical products (see Exhibit 2). In addition, import quota restrictions for polyester resins, synthetic fibers and other petrochemical products are now abolished. All these changes spell trouble for the local companies who are now susceptible to international pricing mechanism and hence, intensive competition. The global chemical industry has been grappling with over-capacity due to the sluggish economy and most foreign companies are aggressively exporting their products to China. However, the lowered tariffs and abolishing of import quotas will not be in full effect until 2003-2004 so local producers such as PetroChina and SINOPEC will have a few years to shape up, revamp their under-performing plants and accelerate their technology progression. Even so, domestic competition has escalated to an intense level as the average tariff rates for most petrochemical and chemical products have already been lowered to 12%.

**Exhibit 2
Tariff Rates of Chemical Products in China**

Product	Current Tariff (%)	Agreed Tariff (%)	Effective Date
Ethylene	5	2	2003
Polyethylene	12	6.5	2008
Polypropylene, PVC, PE, ABS	12	6.5	2008
Ethylene Glycol	14	7	2003
Acrylic Acid	9	6	2001
AH salt	16	9	2001
PET staple	19	5	2003
PET filament	19	5	2005
Fertilizer	5	4	2001

Source: Chemical Market Resources

A New Petrochemical Landscape

Small and mid-sized companies that have low capacities, inferior technology and mediocre products will eventually be ousted. Overcoming the barrier of higher quality materials coming in

at a much more competitive pricing system than before as a result of lowered tariff rates will be a formidable challenge for these smaller players. However, large enterprises such as SINOPEC, that has formed several strategic alliances and joint ventures with foreign-owned chemical giants such as BASF, BP and ExxonMobil, will not be facing a similar situation. Importation of advanced technology, equipment and processing methodologies will give the chemical industry a healthy boost in enhancing product quality and achieving economies of scale, thereby propelling China's chemical industry to a global standard. Ultimately, in about 10 years time, the petrochemical landscape in China will be dominated by world-class players with world-class facilities.

Unemployment

Despite the advantages of China's WTO entry, there are inevitable drawbacks particularly in the local labor force. With the expected withdrawal of smaller companies, there will be an imminent rise in unemployment. Prior to China's WTO accession, employees enjoy a multitude of benefits provided by state-owned enterprises such as housing and education. However, with impending restructuring of the chemical industry, consolidation and internal reforms within these enterprises, lay-offs on a massive scale have already occurred and the unemployment rate has reached a record high of 3.6%.

Attracting Foreign Investors

Although China's accession into the WTO can be a bitter pill to swallow for some industry sectors but it is generally perceived as a huge window of opportunity for China's accessibility to foreign markets. Trade negotiations are underway as China has been granted preferential tariffs for some of its exports in certain countries. The WTO status is definitely a vehicle to put China on the world map where it will be able to compete effectively on a global scale.

It is imperative that China starts to create a more transparent environment in implementing its policies in order to create a more appealing setting for foreign investors. North American and European players recognized the threat of gradually losing their market share in international trade to China in the post-WTO era, once self-sufficiency is reached and China starts to export its products. In order to protect their positions, chemical producers has to be opportunists and resist the advance of Asian competitors by gaining more market shares in East Asia. According to estimates back in 1997, the European chemical industry predicted that the East Asia's market share would escalate to 56% while Europe's would slide by 12%. The solution to this impending problem was clear: Get ahead of the game, globalize and start investing in foreign markets. The common agenda is to use the production bases in China to secure market shares in Asia without hurting their market position in the North American and European regions even when the "export scenario" ensues.

SINOPEC is the obvious choice for many multinational companies as a joint venture partner because of its close association with the Chinese government and duopoly (with PetroChina) status. SINOPEC represents a convenient portal of entry for many foreign investors who are making the beeline to the Chinese petrochemical industry.

Sinopec Corp.

SINOPEC Corp. (China Petroleum and Chemical Corporation) was established in 1998 as part of a premeditated reform by the 100% state-owned SINOPEC Group, in order to channel the best assets and businesses into one mammoth enterprise with the intention of selling 20% of its stake to foreign investors. The State, of course, still holds 55% of its shares and will always remain as the predominant shareholder and supervisory body in this corporation.

SINOPEC Corp. was created to fulfill the objectives of adopting the managerial style of a modern enterprise, divesting its assets and increasing the competitiveness of local chemical products to a global standard. It is involved in every aspect of the upstream and downstream processing operations covering an array of activities such as oil exploration/refining, chemical fibers, fertilizers, natural gas transportation, commodity chemicals, synthetic resins, synthetic rubber and engineering plastics. Exhibit 4 shows the major petrochemical complexes located mainly in the south and eastern regions of China, which is where their principal markets lie.

SINOPEC also has more than 70 subsidiaries including joint ventures with foreign companies focusing mainly on downstream operations. Although SINOPEC has identified downstream petrochemical products such as polyolefins, PVC and ABS as their focus in developing higher-value products but its progress is Impeded by under-performing production facilities. Since SINOPEC was very much an “enterprise” run by the government, it was severely deficient in several elements that a successful corporation should possess such as (1) asset management, (2) operation efficiency (3) fundamental understanding of market dynamics/mechanisms (4) business strategy and (5) synergy of upstream and downstream operations. By June 1998, SINOPEC was ready for a mega-metamorphosis *i.e.* to corporatize and adopt a modern enterprise system in response to SETC's goal of cutting down government's interference in private enterprises.

Exhibit 4
Major Petrochemical Plants of SINOPEC, 2002



Source: Chemical Market Resources

Exhibit 5: Production Capacities and Market Shares

Product	Capacity ('000 tons)	Market Share		
		SINOPEC	CNPC	Others
Ethylene	1,990	61%	32%	7%
Polypropylene	1,450	68%	21%	11%
HDPE	570	63%	32%	5%
LDPE	678	63%	32%	5%
LLDPE	218	63%	32%	5%
Polyvinyl Chloride	230	8%	1%	91%
Polystyrene	151	43%	7%	50%
Total Synthetic Fiber	1,206			
- Polyester Fiber Filament	356	17%	3%	50%
- Polyester Fiber Staple	545	17%	3%	50%
- Acrylic Fiber	288	53%	21%	26%
- PP Fiber	17	10%	5%	85%
Synthetic Rubber (SBR)	363		30%	7%

Source: Chemical Market Resources, Inc.

Sinopec Corp. - Operations Overview

Exploration & Refining

SINOPEC has 6 oilfields located mainly in the eastern and southern parts of China and is the second largest producer of crude oil and natural gas. Shengli Oilfield, the second largest in China, is the most important producing field under Sinopec Corp. Its exploration activities was boosted by the recent acquisition of SINOPEC National Star. SINOPEC produces about 737,7000 barrels of crude oil daily, accounting for about 22% of the total crude oil production in China.

SINOPEC operates 25 refineries located, again, in the eastern coastal regions. Refining and petrochemical production remains as SINOPEC's core businesses and it accounts for 53% of the nation's total crude oil processing sector.

Chemicals

In China, SINOPEC is definitely the dominant player in the chemicals sector with over 17 plants producing intermediates, synthetic resins, fiber-grade monomers and polymers, synthetic fiber, synthetic rubber and chemical fertilizer, etc. In 2001, the global economic slowdown sent the prices of chemical products spiraling downward by an average of 18.5% mainly because the local market was swamped by imports from Asian and Middle Eastern regions suffering from overcapacity. Despite the global recession, the demand for chemical products remained robust because the local Chinese chemicals market is still crippled by a wide import-export disparity of 50%. The production capacities of the chemical products and market shares are shown in Exhibit 5.

Restructuring Measures of SINOPEC

Ridding Under-Performing Assets

By the end of 1998, SINOPEC had about 89 subsidiaries either wholly-owned or joint ventures under its umbrella, a registered capital of RMB 68.8 billion, more than 30 collaborative projects with foreign countries and owns the most prominent petrochemical complexes such as Shanghai Petrochemical, Beijing Yansan, Qilu Petrochemical and Yangtze Petrochemical. These figures are superficially impressive and a deeper investigation will reveal the mounting "dead weight" SINOPEC was encumbered by. This "dead weight" refers to substandard operations that were under-performing and a source of financial drain for the company. Since these inefficient plants were crippling SINOPEC's growth, they undertook a major overhaul to abolish manufacturing sites such as Guangzhou Ethylene Plant and Zhongyuan Petrochemical. Jilin Petrochemical, a subsidiary of SINOPEC Corp., closed down 14 production units that were depleting Jilin's financial resources and were too technologically obsolete to maintain. SINOPEC is still in the process of rationalizing inefficient assets to boost utilization rates to 90% by 2003.

Human Resources Management

Since SINOPEC was a state-owned enterprise (SOE), it was bound to social obligations and one of its key responsibilities was to provide employment for the community. The obvious drawback of this was the inefficient allocation and utilization of human resources. Hiring was not based on the company's need but rather as a service to the people. The urgency to cut costs necessitated lay-offs that are massive in its scale. SINOPEC has already slashed their workforce by 68,000 and is planning on more aggressive job-cuts, up to 100,000 by 2005. If SINOPEC completes the layoff phase, the number of employees will be brought down to just over 400,000 from 512,000. The estimated annual savings is RMB 1.57 billion (US\$190 million), definitely a substantial amount.

Reducing the labor force is not the only measure of reforming the human resources system. SINOPEC has also embarked on an "education program" designed to teach the upper management executives about Western managerial style with the help of Morgan Stanley. This was nothing other than an introductory course to capitalism, a taboo word in communist China and most likely a culture shock for all. The managers were used to running their plants to meet output quotas with no awareness of business strategy, market dynamics or shareholder value etc. Now, SINOPEC is instilling a totally new culture in its management system, essential to running a successful enterprise.

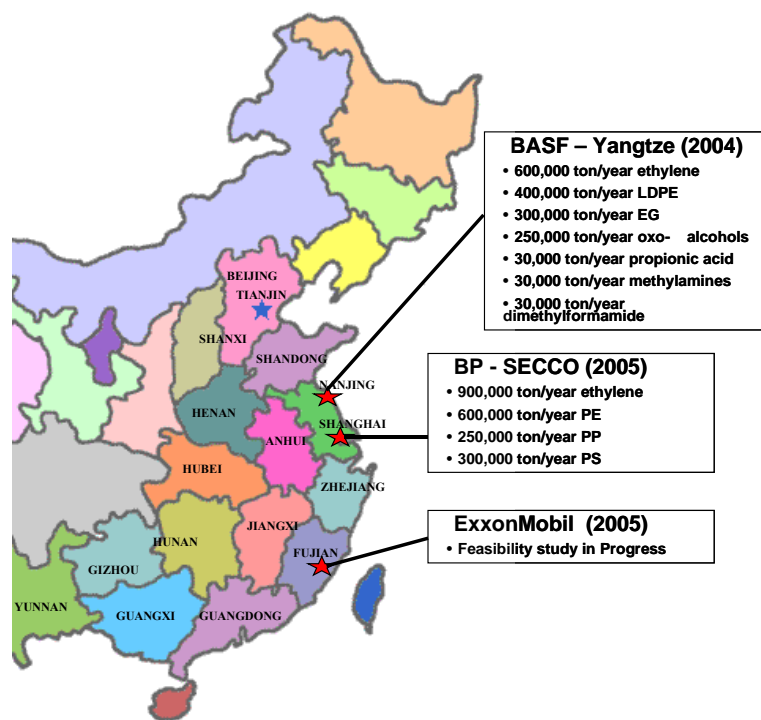
Catching Up - Attracting Foreign Investors

SINOPEC has much catching up to do before its goal of becoming a world-class petrochemical company can materialize- and they have to do it fast. The only way it can speed up the pace of technological advancements is by forging alliances with the chemical giants that had already attained a world-class status.

The largest collaboration by far is a US\$2.7 billion petrochemical joint venture between BP and SINOPEC, Shanghai Secco Petrochemical Co. (Secco). BP holds 50% of Secco, SINOPEC 30% and Shanghai Petrochemical (a subsidiary of SINOPEC) holds the remainder. Secco will accommodate a 900,000 ton/year ethylene plant and derivatives units at Caojing, Shanghai. From SINOPEC's standpoint, this cooperative project is definitely a winner because BP will not only contribute in enhancing their technology position but also contributing invaluable knowledge in building an efficient infrastructure, cultivating a modern corporate culture, enhancing distinctiveness in polyolefins/polymers and reinforcing Secco's competitive edge. For BP, they will be guaranteed a huge portion of the coveted pie in the Chinese petrochemical industry.

Another joint venture comparable in scale is the BASF-SINOPEC Yangtze Petrochemical US\$2.9 billion ethylene plant located in Nanjing. This petrochemical complex is focused on downstream derivatives. The joint venture is also a cornerstone of BASF's strategy to build an Asian manufacturing base that will provide materials for 70 per cent of its sales in the region by 2010. The largest joint venture projects currently in progress has been outlined in Exhibit 6.

Exhibit 6 Major Joint Venture Projects with BASF, BP & ExxonMobil



Source: Chemical Market Resources

government to meet the mounting demand for chemical products in the local market instead of relying on imports. If SINOPEC does not secure a sturdy market position now, they will have to challenge the inundation of chemical products after China's WTO accession as tariffs will be reduced by 6-11%. Presently, China is still dealing with an acute trade deficit especially for polyolefins, engineering plastics and chemical products. SINOPEC is anticipating to face the toughest competition in synthetic resins and synthetic fibers and forming joint ventures with petrochemical conglomerates will counterpoise the impact from new market entrants.

SINOPEC in the Future

Overview

SINOPEC will continue to monitor the developments of their ethylene expansion plans at Shanghai Petrochemical and Yangtze Petrochemical very closely to ensure that the operations are in compliance with the technological upgrades and HSE regulations. Also in the pipeline is the focus on engineering plastics, which will be achieved through collaborative projects with BP and BASF. SINOPEC will also have to brace itself from the influx of foreign chemical products priced at a much more competitive level due to lower tariffs. Since sub-scale chemical production companies will most likely be ousted, SINOPEC has positioned itself as a principal

player because only companies with the capability of investing mega dollars would be able to survive the post-WTO competition. Ultimately, in about 10 years time, the petrochemical landscape in China will be dominated by world-class players with world-class facilities.

SINOPEC is anticipating that the demand for synthetic resins to increase by 7-8% and is planning on tapping the huge market potential in China by increasing production of LDPE, LLDPE, HDPE, PVC and PET fibers. SINOPEC has set targets for its ethylene and synthetic resin output to be 258,000 tons and 385,000 tons respectively for 2002.

Impact of WTO entry on SINOPEC

With China's newly acquired status as a WTO member comes with certain challenges that the petrochemical industry will have to tackle. For SINOPEC, this is a welcoming opportunity to explore the export market particularly in the chemicals area, one of the largest beneficiaries of the WTO entry. This will be an opportune time to really focus on improving the quality of their products in order to increase their marketability overseas. SINOPEC will be making the necessary preparations in upgrading and diversifying its product line to capitalize on the prospect of trading with fellow WTO member countries. However, it is inevitable that for the next 2-3 years, SINOPEC will have to take a backseat to foreign competitors especially for specialty chemicals, synthetic fibers and performance plastics. This is because most of the joint venture projects with the multinational firms will only go on stream in 2005 or 2006.

China in 2010

Although the Chinese chemical market holds tremendous potential, multinational chemical companies operating there have to be aware that the market sizes and growth trends of the chemical industry may be inflated and some commodity products will approach saturation stage by 2010 or possibly earlier. On the other hand, China is still facing an acute shortage situation in engineering plastics such as polyoxymethylene, polycarbonates, polyphenylether and polyurethanes. Presently, 50-60% of the demand in China for polyolefins, PVC, ABS and the engineering plastics are dependent on imports. In about 8 to 10 years time, the import-export trade gap will definitely be narrowed substantially considering that most new production plans will be in full operation by 2006.

The chemical industry cannot be viewed as a separate entity in the Chinese economy as it is definitely not buffered from the political changes in the country. Creating a socialist market economy is critical to the success during this transition period where economic reforms and restructuring in every industrial sector is underway. After China received the entry ticket to the WTO, China may well play a leading role in building a new international economic and political order, rather than simply serving as a world production base and a market with huge growth potential. However, the ramification of assuming this role is the delicate balance of trade and political relations with neighboring Asian countries who may view the spectacular escalation of China on the world economic map more as a threat than an opportunity. China has already reassured its neighbors that it is committed to bringing prosperity as whole to the region.

Will China be an elusive quest to huge untapped markets for zealous Western investors? The answer hinges on China's commitment to abide to international WTO regulations and pursuing political dialogues with Europe, America, Japan and the rest of the world. Although the multinational chemical companies in China were leery of the unpredictable political climate in China in the beginning, most agree that the allure of the growing economy far outweighs the

associated risks. Investors will have to be vigilant about the surfacing of social unrest if the Chinese government does not effectively remedy the problem of unemployment soon and placate the resentment of domestic producers losing significant market shares to foreigners. All foreign chemical players are very aware of the strong competitive advantage that they have in terms of technology, experience and deeper pockets. Despite this, they cannot expect to command the petrochemical sector in China because of government constraints that enforces the “50%” rule, fearing that foreigners will monopolize the “pillar” industry of China.

For more information regarding this article or to discuss other matters pertaining to market research in the plastics and chemicals industries, please contact
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